

REMARKS

The Office action mailed on 13 January 2004 (Paper No. 6) has been carefully considered.

The specification is being amended to correct minor errors and improve form. Claims 12 and 19 are being canceled without prejudice or disclaimer, claims 1 thru 7, 9 thru 11, 13, 14, 16 thru 18, 20, 21 and 23 thru 25 are being amended, and claim 26 is being added. Thus, claims 1 thru 11, 13 thru 18 and 20 thru 26 are pending in the application.

In paragraph 2 of the Office action, the Examiner states that claims 7, 8, 10, 11, 17 and 18 are withdrawn from further consideration as being drawn to a non-elected invention. For the reasons stated below, it is submitted that, at the minimum, independent claims 9 and 16 and their associated dependent claims should now be in condition for allowance. Therefore, the withdrawal of dependent claims 10, 11, 17 and 18 (which are dependent from independent claims 9 and 16, respectively) should be rescinded, and those claims should be considered to be in condition for allowance.

In paragraph 3 of the Office action, the Examiner requests copies of two Korean references, KR1998-063572 and KR1988-29055 cited in the international search report issued in International Application PCT/KR00/01346 upon which this US application is based. Copies of these references and the respective English language Abstracts are

being provided herewith. Please note that the Examiner with the Korean Industrial Property Office confirms that KR1988-29055 was mistyped in the international search report and that the correct Korean patent reference meant to be cited in the international search report is KR1988-20955. Accordingly, a corrected PTO-1449 in which the aforesaid Korean reference number is corrected, is attached. Entry and consideration of the PTO-1449 and the references cited in the PTO-1449, including the two Korean references, KR1998-063572 and KR1988-20955, are respectfully requested.

In paragraph 5 of the Office action, the Examiner objected to the specification in two respects. Pages 9 and 14 of the specification are being amended in a manner consistent with the comments set forth by the Examiner in paragraph 5 of the Office action. Thus, the objection to the specification should no longer apply, and should be withdrawn.

In paragraph 7 of the Office action, the Examiner rejected claims 1, 2, 4, 9 and 16 under 35 U.S.C. §102 for alleged anticipation by Low *et al.*, U.S. Patent No. 5,276,300. In paragraph 9 of the Office action, the Examiner rejected claims 3, 5, 6 and 23 thru 25 under 35 U.S.C. §103 for alleged unpatentability over Low *et al.* '300 in view of Akazawa *et al.*, U.S. Patent No. 5,237,140. In paragraph 10 of the Office action, the Examiner objected to claims 12 thru 15 and 19 thru 22 for dependency upon a rejected base claim, but stated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For the reasons stated

below, it is submitted that the invention recited in the claims, as now amended, is distinguishable from the prior art cited by the Examiner so as to preclude rejection under 35 U.S.C. §102 or §103.

Independent claim 1 is being amended for the purpose of improving its form only. Nevertheless, it is submitted that the invention recited in independent claim 1 is distinguishable from the prior art so as to preclude rejection under 35 U.S.C. §102 or §103.

In the latter regard, Figures 5, 7 and 8 of Low *et al.* '300 (cited by the Examiner) are block diagrams of a power inverter used in a microwave oven. Referring to paragraph 7 of the Office action, the Examiner apparently takes the position that the FET bank 190, 192 of Figure 8 of Low *et al.* '300 corresponds to the inverting unit recited in claim 1, that the high voltage transformer 70 of Figure 8 of Low *et al.* '300 corresponds to the high voltage transformer recited in claim 1, and that the elements 370, 372, 374, 359, 360, 362, 366 of Figure 8 of Low *et al.* '300 correspond to the claimed excessive current detecting unit. The Examiner then alleges that, as a result of the operation of the latter elements forming an "excessive current unit", a current supply from the DC power supply to the inverting unit is detected, and a signal is outputted to the pulse driving unit to cut off the generation of driving pulses to stop the operation of the microwave oven (*see* paragraph 7, lines 5-8 of the Office action). However, the Examiner never identifies those elements in Figure 8 (or any other figure) of Low *et al.* '300 corresponding to the

pulse driving unit recited in claim 1.

With respect to the alleged stopping or cutting off of the operation of the microwave oven, the Examiner cites Figure 8 in combination with column 8, lines 39-57 of Low *et al.* '300. However, a review of column 8, lines 39-57 of Low *et al.* '300 fails to reveal any disclosure of the stopping of the operation of the microwave oven by virtue of cutting off of generation of driving pulses or any other means. Rather, the cited portion of Low *et al.* '300 merely mentions an error signal which is derived from sensing of the input power to the magnetron, and specifically the comparing, by a comparator 366, of a voltage on line 362 with a reference value on line 364 so as to produce an error signal on line 358 (*see* Figure 8 and column 8, lines 46-48 of the patent). There is no mention in the patent of the use to which this error signal is put.

The cited portion of the patent also mentions the generation of another error signal “representative of an excessive current load on the battery” (*see* column 8, lines 49-50 of the patent). Specifically, it is stated that a voltage developed across resistor 370 is compared with a reference value on line 372, the reference value corresponding to a maximum allowable current load from the battery (for example, 80 amperes). It is further stated that, when the voltage developed across resistor 370 exceeds the reference value, the output 356 from comparator 374 “goes sharply negative and causes a pulse width reduction by way of comparator 359” (quoting from column 8, lines 56-57 of the patent). Again, there is no stated relationship between this error signal, generated by comparator

374, and the cutting off of operation of the microwave oven.

Thus, the portion of the patent cited by the Examiner (column 8, lines 39-57) does not support the Examiner's statement that, in Low *et al.* '300, a signal is outputted to a pulse driving unit to cut off the generation of driving pulses so as to stop operation of the microwave oven. Therefore, it cannot be said that Low *et al.* '300 discloses or suggests the driving circuit recited in independent claim 1 of the present application.

Previous dependent claim 5 is being amended to improve its form only. It is submitted that new dependent claim 5 recites the invention in a manner distinguishable from the prior art so as to preclude rejection under 35 U.S.C. §102 or §103.

In the latter regard, in paragraph 9 of the Office action, dependent claim 5 was rejected under 35 U.S.C. §103 for alleged unpatentability over Low *et al.* '300 in combination with Akazawa *et al.* '140. However, a review of paragraph 9 of the Office action fails to reveal any allegation by the Examiner that the combination of those two references discloses or suggests a driving circuit as recited in claim 5. More specifically, there is no disclosure or suggestion in the prior art, and the Examiner has not cited any such disclosure, of a driving circuit in which an excessive current detecting unit detects a current supply from a DC power supply to the inverting unit, and outputs an excessive current detecting signal to a pulse driving unit to cut off generation of driving pulses of the pulse driving unit. Furthermore, there is no disclosure or suggestion in the prior art,

and the Examiner has not cited any such disclosure, of an excessive current maintaining unit for continuously maintaining the excessive current detecting signal when the excessive current detecting signal is outputted by the excessive current detecting unit. For these reasons, it is submitted that amended claim 5 is distinguishable from the prior art so as to preclude rejection under 35 U.S.C. §102 or §103.

Independent 9 is being amended to include the recitation from dependent claim 12, which is being canceled, while independent claim 16 is being amended to include the recitation from dependent claim 19, which is also being canceled. Since the Examiner indicated (in paragraph 10 of the Office action) that dependent claims 12 and 19 were merely objected to for dependency upon a rejected base claim, and would be allowable if rewritten in independent form, it is submitted that amended independent claims 9 and 16 (and their associated dependent claims) are now in condition for allowance.

Independent method claim 23 is being amended for the purpose only of improving its form. It is submitted that independent method claim 23 is distinguishable from the prior art for the same reasons as stated above relative to independent claim 1.

Specifically, independent method claim 23 recites three steps of the inventive method, specifically, driving of a pulse driving unit by controlling a switching unit, detecting whether an excessive current is supplied to a high voltage transformer through an inverting unit driven by the driving pulses generated by the pulse driving unit, and

cutting off the AC voltage supply to a magnetron by stopping the driving of the pulse driving unit when the excessive current is detected. As stated above, there is no disclosure or suggestion in the prior art cited by the Examiner of any connection between the error signals generated by the comparators 366 and 274 (cited by the Examiner) and the cutting off of AC voltage supply to a magnetron by stopping the driving of the pulse driving unit when an excessive current is detected. Thus, for the same reasons as stated above relative to independent claim 1, the inventive method of independent claim 23 is also distinguishable from the prior art.

Finally, new dependent claim 26 is being added to provide complete protection of the invention. Specifically, new dependent claim 26 is a combination of the recitations of independent claim 23 and dependent claim 25. Thus, new dependent claim 26 is distinguishable from the prior art for the same reasons as stated above relative to independent claim 23. Furthermore, dependent claim 26 is also distinguishable from the prior art by virtue of the fact that the prior art does not disclose or suggest, and the Examiner has not cited any disclosure or suggestion of, a three-terminal monitor switch having a fixed terminal connected in a voltage supply path connecting an inverting unit in a high voltage transformer, a first contact selectively switched to the fixed terminal so as to be connected to the DC power supply through a fuse, and a second contact selectively switched to the fixed terminal so as to be connected to a unit for carrying out detection of the excessive current when a cooking chamber door is closed, the fixed terminal being switched to the second contact in step (b). Thus, on the latter basis, dependent claim 26

should be allowable over the prior art.

In view of the above, it is submitted that the claims of this application are in condition for allowance, and early issuance thereof is solicited. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

No fee is incurred by this Amendment.

Respectfully submitted,



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